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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/833,030	04/10/2001	Laszlo Hevesi	VANM215.001AUS	8359

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EXAMINER	
TRAN, MY CHAU T	

ART UNIT	PAPER NUMBER
1641	9

DATE MAILED: 05/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/833,030	Applicant(s) HEVESI ET AL.	
	Examiner My-Chau T. Tran	Art Unit 1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 February 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) *11 and 12* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 April 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, Claims 1-10, in Paper No. 7 is acknowledged. Claims 11-12 of Group II are drawn to non-elected invention.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-10 are rejected under 35 U.S.C. 112, first paragraph, because the claims do not correspond with the enabling written description of the invention as it is set forth in the specification and figures. The enabling description of the invention clearly requires the use of a reactant which is an olefinic silane coupled to a solid support (see pg. 6, lines 29-33 to pg. 7, lines 1-2; fig. 1). Claim 1 step a) as presently written includes the oxidation of any type of carboxylic acid which is directly linked to a support. The specification clearly does not support a claim of this scope with an enabling written description.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 1-10 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "chemical groups" of claim 1 is vague and indefinite because not all chemical groups oxidize to form an aldehyde. For example the oxidation of ketone produces an ester and/or carboxylic acid.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1, 3, 6, and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Befani et al. (*Biotech. Appl. Biochem.*, 28:99-104, **1998**) in view of Sundberg et al. (Us Patent 5,624,711).

Befani et al. disclosed a method of oxidizing a solid support to form an aldehyde (pg. 101, Scheme 1). The aldehyde would then bind to an enzyme that is SAO (pg. 101, left col., lines 32-34). The oxidation is performed in an aqueous solution (pg. 99, left col., lines 1-8).

The method of Befani et al. differs from the claimed invention in failing to disclose that the immobilization of the biological or chemical molecules result in an array and the support surface is glass.

Sundberg et al. discloses a method of immobilization of the biological or chemical molecules on a solid support resulting in an array (Abstract; Fig. 1-2, and 8-11; col. 1, lines 64-67; col. 2, lines 15-32). The support surface is glass (Fig. 8-11; col. 11, line 10). The solid support has discrete regions (col. 2, lines 26-27).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Befani et al. by including the technique of immobilization of the biological or chemical molecules on a solid support resulting in an array as taught by Sundberg et al. for the well known advantage of providing an improved method of preparing libraries having large numbers of diverse biological polymers on a single support or chip for the determination of binding affinity and diagnostic application (col. 1, lines 7-21).

The feature "4 or more discrete regions/cm^2 of the solid support" of claim 1 constitutes obvious variations in parameters which are routinely modified in the art and which have not been described as critical to the practice of the invention.

10. Claims 1, 3, 6, and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weetall (*Applied Biochemistry and Technology*, 41:157-188, **1993**) in view of Sundberg et al. (Us Patent 5,624,711).

Weetall disclosed a method of oxidizing a solid support to form an aldehyde (pg. 167, Fig. 6). The aldehyde would then bind to a protein (pg. 167, Fig. 6; pg. 165, lines 25-28 to pg. 166, lines 1-4). The oxidation is performed in an aqueous solution (pg. 160, lines 28-33). The support surface is glass (pg. 158, lines 38-39).

Weetall's method differs from the claimed invention in failing to disclose that the immobilization of the biological or chemical molecules result in an array.

Sundberg et al. discloses a method of immobilization of the biological or chemical molecules on a solid support resulting in an array (Abstract; Fig. 1-2, and 8-11; col. 1, lines 64-67; col. 2, lines 15-32). The solid support has discrete regions (col. 2, lines 26-27).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Weetall by including the technique of immobilization of the biological or chemical molecules on a solid support resulting in an array as taught by Sundberg et al. for the well known advantage of providing an improved method of preparing libraries having large numbers of diverse biological polymers on a single support or chip for the determination of binding affinity and diagnostic application (col. 1, lines 7-21).

The feature "4 or more discrete regions/cm^2 of the solid support" of claim 1 constitutes obvious variations in parameters which are routinely modified in the art and which have not been described as critical to the practice of the invention.

11. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barner et al (US Patent 5,986,066) in view of either Weetall (*Applied Biochemistry and Technology*, 41:157-188, **1993**) or Sundberg et al. (Us Patent 5,624,711).

Barner et al. teaches a method of oxidizing octenyl trichlorosilane, an olefin on a solid surface, with permanganate and periodate to form a functional group for immobilizing a protein (col. 8, lines 36-47; col. 3, lines 60-65). The immobilization of the biological or chemical molecules on a solid support results in an array with discrete regions (col. 2, lines 6-17; fig. 1-3).

Barner et al. method differs from the claimed invention in failing to include aldehyde as a functional group and the solid support is glass.

Weetall and Sundberg et al. disclosed having an aldehyde as a functional group for the immobilization of biological or chemical molecules (Weetall: pg. 167, Fig. 6; pg. 165, lines 25-28 to pg. 166, lines 1-4; Sundberg et al.: fig. 8). The solid support is glass (Weetall: pg. 158, lines 38-39; Sundberg et al.: Fig. 8-11; col. 11, line 10).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Barner et al. by including the aldehyde functional group as taught by Weetall and Sundberg et al. because it is well known that any suitable functional group such as an aldehyde, a carboxylic acid or amine can be use for the immobilization of biological or chemical molecules (Weetall: pg. 166, lines 3-23; Sundberg et al.: Fig. 8-11; col. 2, line 19-

24; col. 16, lines 32-37; col.3, lines 60-65). Therefore, it would have been an obvious matter of design choice to have an aldehyde functional group rather than a carboxylic acid group (Barner et al.). This is particularly true since in the Barner et al. process it would be expected that the octenyl group would first be oxidized to an aldehyde and then further oxidized to the carboxylic acid. Since applicant has not disclosed that the aldehyde functional group solves any stated problem or is for any particular purpose, it appears that the invention would perform equally well with either an aldehyde or a carboxylic acid as a functional group.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to My-Chau T. Tran whose telephone number is 703-305-6999. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long V. Le can be reached on 703-305-3399. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-4242 for regular communications and 703-872-9307 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.

Mary E. Ceperley

MARY E. CEPERLEY
PRIMARY EXAMINER
AU 1641

mct
May 3, 2002